

RARE-EARTH-Ba-Cu-O SUPERCONDUCTORS  
AND METHODS OF MAKING SAME

ABSTRACT

[0051] Rare-earth-Ba-Cu-O superconductors having improved critical current density are described, as are methods of making same. These superconductors comprise a drop in  $J_c$  of less than a factor of about 7 at a temperature of between about 30K to about 77K, and at a magnetic field of about 1 Tesla, when the magnetic field is applied normal to the surface of the superconductor, as compared to a  $J_c$  in the presence of no magnetic field. These superconductors, when a magnetic field is applied perpendicular to the HTS surface have a peak  $J_c$  that is about 50-90%, and when a magnetic field is applied in any orientation with respect to the HTS surface have a  $J_c$  value that is at least about 50%, of the peak  $J_c$  that exists when the magnetic field is applied parallel to the surface of the superconductor.